

In the Claims (Clean copy as amended)

1. (Amended) An isolated ribonucleic acid molecule that prolongs the expression of a cold shock inducible gene under conditions that elicit the cold shock response in a bacterium.

2. (Amended) The isolated ribonucleic acid molecule of Claim 1, wherein said molecule comprises a 5'-UTR of a cold shock inducible gene or a substantially homologous sequence thereof.

3. (Amended) The isolated ribonucleic acid molecule of Claim 2, wherein said 5'-UTR is a 5'-UTR of a cold-shock inducible gene selected from the group consisting of *cspA*, *cspB* and *csdA*.

4. (Amended) The isolated ribonucleic acid molecule of Claim 2, wherein said 5'-UTR comprises a cold box or a substantially homologous sequence thereof.

5. (Twice Amended) The ribonucleic acid molecule of Claim 3, wherein said 5'-UTR comprises nucleotides +1 to +11 of the *cspA* 5'-UTR (nucleotides 1 to 11 of SEQ. ID. NO. 55) or a nucleotide sequence having substantial homology to nucleotides +1 to +11 of the *cspA* 5'-UTR (nucleotides 1 to 11 of SEQ. ID. NO. 55).

6. (Amended) The isolated ribonucleic acid molecule of Claim 1, wherein said cold shock inducible gene interacts with CspA protein.

7. (Amended) An isolated ribonucleic acid molecule that represses the expression of a cold shock inducible gene under physiological conditions.

8. (Amended) The isolated ribonucleic acid molecule of Claim 7, comprising at least a portion of the 5'-UTR of a cold shock inducible gene.

9. (Amended) The isolated ribonucleic acid molecule of Claim 8, wherein said cold-shock inducible gene is selected from the group consisting of *cspA*, *cspB*, and *csdA*.

11. (Amended) A non-coding ribonucleic acid molecule that enhances the translation of a cold shock inducible gene under conditions that elicit the cold shock response of a bacterium.

12. (Amended) The ribonucleic acid molecule of Claim 11 comprising at least a portion of the 5'-UTR of a cold shock inducible gene.

13. (Amended) ribonucleic acid molecule of Claim 12 wherein said cold shock inducible gene is selected from the group consisting of *cspA*, *cspB*, and *csdA*.

14. (Twice Amended) The ribonucleic acid molecule of Claim 13, comprising nucleotides +123 to +135 of the *cspA* 5'-UTR (nucleotides 123 to 135 of SEQ. ID. NO. 55) or a nucleotide sequence having substantial homology to nucleotides +123 to +135 of the *cspA* 5'-UTR (nucleotides 123 to 135 of SEQ. ID. NO. 55).

15. (Amended) The ribonucleic acid molecule of Claim 14 comprising a sequence selected from the group consisting of SEQ ID NO:48, SEQ ID NO:49, and SEQ ID NO:50.

16. (Amended) A nucleic acid vector that enhances translation of a gene under conditions that elicit a cold-shock response in a bacterium comprising a downstream box and a first nucleic acid fragment derived from a first nucleic acid molecule comprising said first nucleic acid fragment and a first cold shock inducible gene, wherein said first nucleic acid fragment enhances translation of said first cold shock inducible gene under conditions that elicit the cold shock response in bacterium, and wherein said nucleic acid vector is free from said first cold shock inducible gene.

17. (Amended) The nucleic acid vector of Claim 16 further comprising a Shine-Dalgarno sequence.

18. A nucleic acid vector of Claim 16 further comprising a cold box, wherein said vector directs prolonged expression and enhances translation of a gene under conditions that elicit a cold shock response in a bacterium.

19. (Amended) A nucleic acid vector that directs the prolonged expression and enhances the translation of a gene under conditions of physiological stress that elicit a cold shock response of a bacterium, and represses the expression of the gene under physiological conditions comprising a first nucleic acid fragment derived from a first nucleic acid molecule comprising said first nucleic acid fragment and a first cold shock inducible gene, wherein said first nucleic acid fragment enhances translation of said first cold shock inducible gene under cold shock conditions, a second nucleic acid fragment derived from said first nucleic acid molecule or from a second nucleic acid molecule, said second nucleic acid molecule comprising said second nucleic acid fragment and a second cold shock inducible gene, wherein said second nucleic acid fragment represses expression of said first or second cold shock inducible gene under physiological conditions, a cold box, and a downstream box, wherein when said first nucleic acid fragment and said second nucleic acid fragment are derived from said first nucleic acid molecule, said vector is free from said first cold shock inducible gene, and wherein when said first and second nucleic acid fragments are respectively derived from said first and second nucleic acid molecules, said vector may comprise one of said first cold shock inducible gene or said second cold shock inducible gene.

20. (Amended) The vector of claim 16 further comprising a coding region of a second cold shock inducible gene.

21. (Amended) The vector of Claim 18, further comprising a coding region of a second cold-shock inducible gene.

22. (Amended) The vector of Claim 19, further comprising a coding region of a third cold-shock inducible gene, wherein when said first nucleic acid fragment is derived from said first nucleic acid molecule and said second nucleic acid fragment is derived from said second nucleic acid molecule, said third cold shock inducible gene may be one of said first

cold shock inducible gene or said second cold shock inducible gene.

23. (Amended) The vector of Claim 16 further comprising a coding region of a heterologous gene.

24. (Amended) The vector of Claim 18 further comprising a coding region of a heterologous gene.

25. (Amended) The vector of Claim 19, further comprising a coding region of a heterologous gene.

26. (Amended) The vector of Claim 16, further comprising a promoter and at least one restriction site downstream of said first nucleic acid fragment and said downstream box for inserting an additional DNA fragment.

27. (Amended) The vector of Claim 18, further comprising a promoter and at least one restriction site downstream of said cold box, said first nucleic acid fragment, and said downstream box for inserting an additional DNA fragment.

28. (Amended) A nucleic acid vector that directs prolonged expression and enhances translation of a gene under conditions of physiological stress that elicit a cold shock response of a bacterium, and represses expression of the gene under physiological conditions comprising a first nucleic acid fragment derived from a first nucleic acid molecule comprising said first nucleic acid fragment and a first cold shock inducible gene, wherein said first nucleic acid fragment enhances translation of said first cold shock inducible gene under cold shock conditions, a second nucleic acid fragment derived from said first nucleic acid molecule or from a second nucleic acid molecule, said second nucleic acid molecule comprising said second nucleic acid fragment and a second cold shock inducible gene, wherein said second nucleic acid fragment represses expression of said first or second cold shock inducible gene under physiological conditions, a cold box, a downstream box, a promoter and at least one restriction site downstream of said cold box, said first nucleic acid

fragment, said second nucleic acid fragment, and said downstream box for inserting an additional DNA fragment.

29. (Amended) The vector of claim 26, wherein said additional DNA fragment comprises a coding region of a second cold shock inducible gene.

30. (Amended) The vector of Claim 27, wherein said additional DNA fragment comprises a coding region of a second cold shock inducible gene.

31. (Amended) The vector of Claim 28, wherein said additional DNA fragment comprises a coding region of a cold shock inducible gene.

32. (Amended) The vector of Claim 26, wherein said additional DNA fragment comprises a coding region of a heterologous gene.

33. (Amended) The vector of Claim 27, wherein said additional DNA fragment comprises a coding region of a heterologous gene.

34. (Amended) The vector of Claim 28, wherein said additional DNA fragment comprises a coding region of a heterologous gene.

38. (Amended) A method for overexpressing a gene comprising the steps of: transforming bacteria with a nucleic acid vector that enhances translation of a gene under conditions that elicit a cold shock response in a bacterium comprising a downstream box, a first nucleic acid fragment derived from a first nucleic acid molecule comprising said first nucleic acid fragment and a first cold shock inducible gene, and a gene, wherein said first nucleic acid fragment enhances translation of said first cold shock inducible gene under cold shock conditions, and subjecting said bacteria to conditions that elicit a cold shock response.

39. (Amended) A method for overexpressing a gene comprising the steps of: transforming bacteria with a nucleic acid vector comprising a downstream box, a cold box, a first nucleic acid fragment derived from a first nucleic acid molecule comprising said first nucleic acid fragment and a first cold shock inducible gene, and a gene, wherein said vector

directs prolonged expression and enhances translation of a gene under conditions that elicit a cold shock response in a bacterium, and subjecting said bacteria to conditions that elicit a cold shock response.

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40. (Amended) A method for overexpressing a gene comprising the steps of: transforming bacteria with a nucleic acid vector comprising a first nucleic acid fragment derived from a first nucleic acid molecule comprising said first nucleic acid fragment and a first cold shock inducible gene, wherein said first nucleic acid fragment enhances translation of said first cold shock inducible gene, a second nucleic acid fragment derived from said first nucleic acid molecule or from a second nucleic acid molecule, said second nucleic acid molecule comprising said second nucleic acid fragment and a second cold shock inducible gene, wherein said second nucleic acid fragment represses expression of said cold shock inducible gene, a cold box, a downstream box, and a gene, wherein said vector directs prolonged expression and enhances translation of a gene under conditions that elicit a cold shock response of a bacterium and represses expression of the gene under physiological conditions, and subjecting said bacteria to conditions that elicit a cold shock response.

41. (Amended) The method of Claim 40, wherein said overexpression causes a reduction in the expression of at least one endogenous protein.

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44. (Amended) The method of Claim 40, wherein said conditions that elicit a cold shock response comprise subjecting said bacteria to a sufficiently low temperature to elicit a cold-shock response.

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50. (Amended) A vector capable of expressing a heterologous gene in a bacterium at physiological temperature or under conditions that elicit a cold shock response comprising regulatory elements in the following order: a promoter, at least a portion of a 5'-UTR of a cold shock inducible gene, a Shine-Dalgarno sequence, a translational initiation codon, a downstream box, and at least one restriction enzyme recognition site for insertion of said

heterologous gene.

β^6 51. (Amended) The vector of Claim 50, further comprising an additional nucleic acid fragment inserted at said restriction enzyme recognition site, wherein said fragment comprises a coding region of a cold shock inducible gene and wherein said fragment is regulated by said regulatory elements.

52. (Amended) The vector of Claim 50, further comprising an additional nucleic acid fragment inserted at said restriction enzyme site, wherein said fragment comprises a coding region of a heterologous gene and wherein said fragment is regulated by said regulatory elements.

β^7 54. (Amended) A method of overexpressing a gene comprising transforming bacteria with a nucleic acid vector of Claim 51 or Claim 52 and subjecting said bacteria to conditions that elicit a cold shock response.
